WHAT IS CLAIMED IS:

1. An injector system for injection of a fluid medium into a patient within an electromagnetic isolation area, the injector system comprising:

a powered injector positioned within the isolation area;

a first communication unit positioned within the isolation unit and associated with the powered injector so that the first communication unit and the powered injector can be moved as a unit; and

a system controller positioned outside the isolation area, the system controller comprising an operator interface and a second communication unit, the first communication unit being adapted to communicate with the second communication unit by transmission of energy through the air, the energy being chosen to not create substantial interference with a magnetic resonance imaging scanner.

2. The injector system of Claim 1 wherein the energy is electromagnetic energy outside the frequency range of the scanner.

3. The injector system of Claim 2 wherein the frequency of the RF energy is above approximately 1 Gigahertz.

4. The injector system of Claim 1 wherein the energy is sonic energy or ultrasonic energy.

5. The injector system of Claim 1 wherein the energy is visible light or infrared light.

6. The injector system of Claim 1, further comprising at least one intermediate communication unit positioned within the isolation area through which the first communication unit can communicate with the second communication unit, the first communication unit communicating with the intermediate communication by transmission of energy through the air.

7. The injector system of Claim 1, further comprising a plurality of intermediate communication units positioned within the isolation area through which the first communication unit can communicate with the second communication unit, the first communication unit communicating with the intermediate communication units by transmission of energy through the air.

8. A system for use with an MRI scanner positioned on a first side of an electromagnetic isolation barrier, the system comprising:

an injector control unit operable to control injection of a fluid medium into a patient, the injector control unit positioned on the first side of the isolation barrier and comprising a first communication unit; and

a system controller positioned on a second side of the isolation barrier, the system controller comprising a second communication unit, the first communication unit being adapted to communicate with the second communication unit in a bi-directional manner by transmission of energy through the air, the energy being chosen to not create substantial interference with a magnetic resonance imaging scanner.

9. The injector system of Claim 8 wherein the first communication unit and the injector control unit are connected so that the first communication unit and the injector control unit can be moved as a unit.

10. The injector system of Claim 9 wherein the energy comprises

electromagnetic energy outside the frequency range of the scanner.

11. The injector system of Claim 11 wherein the frequency of the RF energy is above approximately 1 Gigahertz.

12. A communication system for use with an MRI imaging system, the communication system comprising:

a first communication unit positioned within a shielded housing on an interior side of the isolation barrier, the first communication unit comprising a first receiver and a first transmitter;

a second communication unit positioned on an exterior side of the isolation barrier, the second communication unit comprising a second receiver and a second transmitter, the first communication unit being in connection via optical cabling with a first light transmitting device positioned on an interior side of the isolation barrier adjacent a viewing window in the isolation barrier, the second communication unit being in connection via optical cabling with a second light transmitting device positioned on the exterior side of the isolation barrier adjacent a viewing window in the isolation barrier, the first communication unit and the second communication unit communicating via transmission of optical energy between the first light transmitting device and the second light transmitting device.

13. The communication system of Claim 12 wherein the first communication unit is positioned within a shielded housing.

14. The communication system of Claim 12 wherein the first communication unit is positioned within a shielded housing of an injector control unit.

15. The communication system of Claim 14 wherein the first light transmitting device includes a first lens assembly in communication with the first transmitter via optical cable and a second lens assembly in communication with the first receiver via optical cable, the second light transmitting device including a third lens assembly in communication with the second receiver via optical cable and a fourth lens assembly in communication with the second transmitter via optical cable, the first lens assembly and the third lens assembly being in general alignment to enable communication between the first transmitter and the second receiver via transmission of light therebetween, the second lens assembly and the fourth lens assembly being in general alignment to enable communication between the first receiver and the second transmitter via transmission of light therebetween.

16. A method of controlling an injector within an isolation barrier of a magnetic resonance imaging area, the method comprising:

transmitting RF signals outside the frequency range of the magnetic resonance imaging scanner from a system control unit positioned outside the isolation barrier to an injector control unit inside the isolation barrier, the system control unit comprising an operator interface; and

transmitting RF signals outside the frequency range of the magnetic resonance imaging scanner from the injector control unit to the system control unit.

17. The method of Claim 16 wherein RF signals of at least two different frequencies are transmitted to authenticate data, each of the RF frequencies being outside the frequency range of the scanner.

18. The method of Claim 16 wherein a predetermined authentication algorithm is used to authenticate RF signals transmitted between the system control unit and the injector control unit.

19. A method of transmitting data between the exterior of an isolation barrier of a magnetic resonance imaging area and the interior of the isolation barrier, the method comprising:

positioning a first passive light transmitting assembly adjacent a translucent window in the isolation barrier on the outside of the isolation barrier;

positioning a second passive light transmitting assembly adjacent the window on the interior of the isolation barrier in general alignment with the first light transmitting assembly such that light energy can be transmitted therebetween; and

connecting the second light transmitting assembly via optical cable to a communication unit positioned within a shielded housing within the isolation barrier.